

## PATENT CLAIMS

### I Claim:

1. An unmanned airborne reconnaissance vehicle having:
  - a fuselage;
  - a forward wing pair and a rearward wing pair, the forward wing pair having a leading edge, a trailing edge, a wing root and a wing tip, the rearward wing pair having a leading edge, a trailing edge, a wing root and a wing tip, the two wing pairs being separated vertically in side view by a gap at the roots and at the tips thereof and, in plan view, defining stagger between the trailing edge of the forward wing pair and the leading edge of the rearward wing pair;
  - a pair of tip plates for joining the vertically and horizontally separated wing tips; and
  - a power plant to propel the vehicle through the air.
2. The vehicle of Claim 1 further comprising a substantially "T" shaped tail having a vertical stabilizer with a rudder and an elevator.
3. The vehicle of Claim 2, wherein the elevator is a stabilator.
4. The vehicle of Claim 1, wherein the gap is in the range of 4 to 6 inches at the root and in the range of 2 to 5 inches at the tip.
5. The vehicle of Claim 1, wherein the stagger of the wing pairs is in the range of 16 to 24 inches at the root and 0 to 10 inches at the tip.
6. The vehicle of Claim 1, wherein the two wing pairs are uncranked and have straight leading and trailing edges.



- 1    7.     The vehicle of Claim 1, wherein the rear wing pair includes ailerons and further including an  
2    empennage having a rudder and an elevator.
- 3    8.     The vehicle of Claim 1, wherein the wings are comprised of one or more of the following  
4    materials: fiberglass, carbon fiber, kevlar or polyurethane.
- 5    9.     The vehicle of Claim 1 further comprising a tricycle landing gear for engagement with the  
6    fuselage.
- 7    10.    The vehicle of Claim 1 further comprising an emergency parachute recovery system.
- 8    11.    The vehicle of Claim 1, wherein the power plant includes a single engine mounted either at  
9    the front of the fuselage as a tractor, or at the rear of the fuselage as a pusher.
- 10   12.    The vehicle of Claim 1, wherein the two wing pairs are positively staggered.
- 11   13.    The vehicle of Claim 12, wherein the forward pair of wings has anhedral in the range of +10  
12   to -10 degrees and the rearward pair of wings has dihedral in the range of +10 to -10 degrees.
- 13   14.    The vehicle of Claim 1, wherein the fuselage further includes a ventral fin.
- 14   15.    The vehicle of Claim 1 further including an airfoil defined by Table I.
- 15   16.    The vehicle of Claim 1, wherein the wing span of the forward wing pair is between 80 and  
16   120 inches and the wing span of the rearward wing pair is between 80 and 120 inches, the leading  
17   edge sweep of the forward wing pair is between 0 and 20 degrees, the trailing edge sweep of the  
18   rearward wing pair is between 0 and 20 degrees, the forward wing pair wherein the forward wing  
19   pair has anhedral between -10 and +10 degrees, the rearward wing pair has dihedral between -10  
20   and +10 degrees, the forward wing pair has a root chord of between 10 and 15 inches, the rearward  
21   wing pair has a root chord of between 10 and 15 inches, the forward wing pair has a tip chord of

1 between 5 and 10 inches and the rearward wing pair has a tip chord of between 5 and 10 inches, and  
2 the angle of attack of the two wing pairs is between  $-2$  and  $+2$  degrees.

3 17. The vehicle of Claim 16, wherein the gap at the tip is between 0 and 5 inches and the gap at  
4 the root chord is between 4 and 8 inches and the stagger between the leading edge of the forward  
5 wing pair and the leading edge of the rearward wing pair is between 15 and 25 inches at the wing  
6 root and 0 and 25 inches at the wing tip.

7 18. The vehicle of Claim 1, wherein the two wing pairs are removably fastened to the fuselage by  
8 quick disconnect means.

9 19. The vehicle of Claim 1 further comprising sensory means.

10 20. The vehicle of claim 1 further comprising navigator means capable of being preprogrammed  
11 with one or more flight plans.

12